Waclaw FEB 24 1971

For Ira Herskowitz and Waclaw Szybalski - Definitions of strains

The pedigrees and characteristics of the several strains of λ currently in use were given by Dove (1969). The central point to recognize is that four different lysogenic K12 derivatives have given rise to λ stocks, and that the genotype of the λ carried by each of these lysogens is perceptibly distinct.

1. Calef and his colleagues have derived λ from a K12 strain 336. This λ is denoted "λ crg" by Calef, meaning "crypticogenic" from its propensity to give rise to cryptic prophage deletions.

2. Fuerst and his colleagues have started from the λ prophage carried by the K12 derivative Y10. This is called "λ1" by Jacob and Wollman (1954) and "λY10" by Dove.

3. A prototrophic, F^+ K12 strain obtained from Lederberg became known as "K12 Witkin". This lysogen was immune to λ but not also resistant, unlike the isolate used in Paris (see #4 below). Kaiser obtained his standard strain in Pasadena by selecting a large-plaque variant from the phage issued by K12 Witkin. This variant was probably a b_2 deletion. It is called "λref" by Kaiser (1955), "λb_2" by Kellenberger, Zichichi, and Weigle (1960), and "λPasadena" by Dove.

4. Another prototrophic, F^+ K12 isolate obtained from Lederberg was both immune and resistant to λ. It was called "K12 Wisconsin" by Dove to distinguish it from K12 Witkin. (This is probably a misnomer, since both strains came from Lederberg in Wisconsin.) As pointed out by Lederberg, the prototrophic, F^+ K12 cultures used in his laboratory in 1953 were probably mixed in respect to this difference (Lederberg and Lederberg, 1953). The λ issued by this K12 isolate carries the mutation v_3 and can therefore mutate at a perceptible rate to virulence. The λ in Y10 and in K12 Witkin does not carry v_3. The λ in this strain has been called "λ1A" by Jacob and Wollman, "λ wild" by Calef, and "λ K12" by Dove.

Two hybrid phages serve as standard strains in present work. Kaiser (1957) crossed a derivative of the strain described under #3 with a derivative described under #4. The hybrid is called λ papa (for Paris-Pasadena), and is expected to carry the immunity region from strain #3 and the ~~left~~ A-att arm from strain #4. from att to left?

Jacob and Campbell (1959) isolated the non-inducible (ind^-) repressor mutant in the lysogen Y10. Subsequently, Jacob crossed the ind^- character into λ papa, scoring ind^- and phage density. This hybrid is called "λY10 papa" by Dove. It is the source of many of the recent derivatives from the Pasteur Institute, such as λ ind^- cI_{857}, λ ind^- cI_{su34}, and λ c_{17}.

λY10PaPa in paper.

See Dove Virology 38 (1969) p. 349 for the references

2.17.71
W. Dove.

Dear Joshua
Do you agree with that? If not, please drop me a line since I have to prepare something like that for the λ book
Regards
Waclaw